

BADMINTON NET RETAINER

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates generally to the field of badminton, and in particular to a retainer that securely attaches a badminton net to a net post.

2. The Related Art

[0002] The game of badminton is commonly played on a course in which two upright net posts are mounted in a spaced and opposite manner. A badminton net extends between the posts with opposite ends of the net attached to the posts. The badminton net is comprised of a net body held by upper and lower straps. Ends of each strap are attached to the posts by net retainers to fix the net between the posts.

[0003] An example of the conventional net retainer is shown in Figure 1 of the attached drawings, generally designated with reference numeral 10. The net retainer 10 comprises an elongate rod 12 having a proximal end (not labeled) forming a pair of resilient arms 14 and an opposite distal end (not labeled) forming a ring 16. The arms 14 are substantially opposite to and symmetrical to each other with respect to the rod 12. The arms 14 extend from the proximal end of the rod 12 in a direction toward the distal end by in a diverging manner whereby the arms 14 and the rod 12 form an arrow-shape. The resiliency of the arms 14 allows them to deflect toward and substantially overlap the rod 12, under which condition the proximal end of the rod 12 can be easily fitted into a hole defined in a net post (not shown). The net post is often a tubular member so that once the proximal end of the rod 12 and the arms 14 are fitted into the hole, the arms 14 are allowed to spring back, making a notch 18 defined in each arm 14 fitted over a wall portion of the post thereby securing the retainer 10 to the post. The ring 16 formed on the distal end of the rod 12 defines a central bore 18 through which the upper or lower net strap extends for tightening to attach the net to the post.

[0004] However, since the conventional net retainer is made of plastics, the engagement between the arms of the retainer and the wall of the post deteriorates due to aging and wearing. In addition, in windy days, the engagement may be broken by strong winds impinging upon the net, causing undesired separation of the net from the posts.

[0005] What is thus desired to provide by the present invention is a badminton net retainer that securely retains a badminton net on net posts so as to alleviate or even eliminate the drawbacks of the conventional badminton net retainer.

SUMMARY OF THE INVENTION

[0006] The present invention provides a badminton net retainer that is eliminate the potential risk of undesired separation from a badminton net post by being attached to a post anchoring rope whereby a separation force acting upon the retainer by for example strong winds impinging upon a badminton net is counteracted by the reaction of the anchoring rope.

[0007] The present invention also provides a badminton net retainer having two resilient arms engageable with a wall of a net post and each having a locking element to effectively secure the arm in position against a separation force acting upon a badminton net by for example strong winds.

[0008] More specifically, the present invention provides a net retainer for attaching a badminton net to a net post in which a hole is defined for receiving the retainer. The retainer comprises an elongate rod having first and second ends, a pair of resilient arms extending from the first end of the rod toward the second end in a diverging manner, a primary ring formed on the second end of the rod for receiving and fixing an end of an anchoring rope, and a pair of resilient straps extending transversely from the rod and deformable to completely surround the rod with second rings formed on free ends of the straps overlapping each other to receive and fix net strap. The arms are deflectable toward the rod to allow for insertion of the first end of the rod and the arms into the hole of the post. The resiliency of the arms induces a secure engagement between the arms and the hole. The net retainer may further

comprise a locking bar associated with each arm and extending from a point of the rod away from the first end in a direction toward the first end. The locking bar is resilient and deformable and has an expanded portion selectively and removably receivable in and engageable with a recess defined in each arm to prevent the arm from being deflected.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The present invention will be apparent to those skilled in the art by reading the following description of preferred embodiment thereof, with reference to the attached drawings, in which:

[0010] Figure 1 is a perspective view showing a conventional badminton net retainer;

[0011] Figure 2 is a perspective view showing a badminton net retainer constructed in accordance with a first embodiment of the present invention;

[0012] Figure 3 is a perspective view of a net post to which a badminton net is attached by two badminton net retainers in accordance with the present invention;

[0013] Figure 4 is a perspective view showing a badminton net retainer constructed in accordance with a second embodiment of the present invention; and

[0014] Figure 5 is a perspective view showing a badminton net retainer constructed in accordance with a third embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0015] With reference to the drawings and in particular to Figure 2, a badminton net retainer constructed in accordance with a first embodiment of the present invention, generally designated with reference numeral 40, comprises an elongate rod 42 having opposite proximal and distal ends (both not labeled). A pair of resilient arms 46 extends from the proximal end of the rod 42 in a direction toward the distal

end in a diverging manner whereby the arms 44 and the rod 42 form an arrow-shape. A first ring 46 is formed on the distal end of the rod 42.

[0016] The resiliency of the arms 44 allows the arms 44 to be deflected toward and substantially overlap the rod 42, which allows the proximal end of the rod 42 and the arms 44 to be inserted into a hole defined in a net post 100 (see Figure 3). The resiliency of the arms 44 also allows the arms 44 to spring back once the arms 44 are inserted into the hole of the post 100. Notches 48 are defined in the arms 44 for receiving a portion of a wall 102 of the post 100 when the arms 44 spring back thereby engaging the arms 44 with the wall 102 of the post 100 and attaching the retainer 40 to the post 100.

[0017] The first ring 46 formed on the distal end of the rod 42 defines a central bore 50 through which an end of a post anchoring rope 104 extends. The rope 104 is attached to the ring 46 in any known manner. An opposite end of the rope 104 is fixed to a fixture on which the post 100 stands, such as the ground.

[0018] A pair of retainer straps 52 extends transversely from the rod 42 in opposite directions. The retainer straps 52 are made resilient and deflectable. A free end of each retainer strap 52 forms a second ring 54. The retainer straps 52 are of such lengths that when the retainer 40 is attached to the post 100, the retainer straps 52 substantially surround a circumference of the post 100 with the second rings 54 aligning and overlapping each other at a position substantially opposite to the first ring 46 with respect to the post 100. The aligned and overlapping second rings 54 function as a “unitary” net engaging means for engaging and fixing a badminton net, as well as a fastening means for fixing the free ends of the straps 52 together. This will be further described.

[0019] A badminton net 200 is attached to the post 100 by the retainer 40. The net 200 has upper and lower net straps 202, each having a free end attached to and fixed by the net engaging means comprised of the second rings 54 of the retainer 40. This is done by having the free end of the net strap 202 extending through and tightened to the aligned second rings 54. Force acting upon the net 200, such as a wind impinging upon the net 200, induces a tension on the net strap 202, which in

turn generates a force pulling the second rings 54 away from the post 100. The pulling force is transmitted to the first ring 46 through the retainer straps 52 and is thus counteracted by a reaction generated in the anchoring rope 104 that is attached to the first ring 46. Thus, forces acting upon the retainer 40 are substantially eliminated and the retainer 40 is securely fixed in position on the post 100.

[0020] By having the net strap 202 extending through and tightened to the aligned second rings 54, the second rings 54 are fastened together, which in turn secures the free ends of the straps 52 together.

[0021] Also referring to Figure 4, a net retainer constructed in accordance with a second embodiment of the present invention, generally designated with reference numeral 40' is shown. The second embodiment net retainer 40' is a modification of the net retainer 40 with reference to Figure 2. In the net retainer 40', the retainer straps, which are designated with reference numeral 52', 52'', are made of different lengths extending in opposite directions from the rod 42. However, the overall length of the two straps 52', 52'' is sufficient to substantially surround a circumference of the post 100, just the same as the straps 52 of the net retainer 40. Free ends of the straps 52', 52'' are provided with fastening means to fix the free ends together so as to attach the net retainer 40' to the post 100. The fastening means comprises a hook 60 and a loop 62, which are releasably engageable with each other to selectively fix the free ends of the straps 52', 52'' together.

[0022] The first net strap 52', which is longer than the second net strap 52'', is provided with a second ring 54'. The second ring 54' is positioned along the first net strap 52' so that when the free ends of the straps 52', 52'' are fastened together to surround the straps 52', 52'' around the post 100, the second ring 54' is substantially opposite to the first ring 46. The free end of the net strap 202 may get extending through and tightened to the second ring 54', in substantially the same way as that of the net retainer 40.

[0023] Also referring to Figure 5, a net retainer constructed in accordance with a second embodiment of the present invention, generally designated with reference numeral 70, has a construction similar to that of the first embodiment net retainer 40

discussed previously with reference to Figure 2 but the second embodiment retainer 70 is further provided with locking bars 300. To simplify the description, similar parts of the two embodiments bear the same reference numeral throughout the drawings. Thus, the net retainer 70 comprises an elongate rod 42 having opposite ends on which a pair of resilient arms 44 and a first ring 46 are formed, each arm 44 forming a notch 48 for engaging the wall 102 of the post 100. A pair of retainer straps 52 extends transversely from the rod 42, each forming a second ring 54 on a free end.

[0024] Each arm 44 is associated with a locking bar 300, which extends from the rod 42 from a point away from the proximal end of the rod 42 in a direction toward the proximal end. In other words, the locking bar 300 extends substantially in opposite to the associated arm 44. The locking bar 300 has an expanded free end 302 that is close to a free end of the arm 44. The free end of the arm 44 forms a recess 56 in an inner side thereof, which is substantially opposite to the notch 48. The locking bar 300 is resilient and of such a length that when the arm 44 is fitted into the hole of the post 100 with the notch 48 engaging the wall 102 of the post 100, the locking arm 300 is deflected to have the expanded end 302 fitted into and engaging the recess 56 of the arm 44. By the engagement of the expanded end 302 of the locking bar 300 with the recess 56 of the arm 44, the locking bar 300 securely keeps the arm 44 in close engagement with the wall 102 of the post 100 and resisting against an attempt of deflecting the arm 44 toward the rod 42, which may break the engagement between the arm 44 and the wall 102 of the post 100, thereby locking the arm 44 in position.

[0025] To remove the retainer 70 from the post 100, the locking bars 300 are released from the arms 48 first and then the arms 48 are deflected toward the rod 42, which allows the retainer 70 to be withdrawn from the hole of the post 100. The same process of removal is applicable to the first embodiment retainer 40 with the steps of releasing the locking bar 300 skipped.

[0026] Although the present invention has been described with reference to the preferred embodiments thereof, it is apparent to those skilled in the art that a variety

of modifications and changes may be made without departing from the scope of the present invention which is intended to be defined by the appended claims.